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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,854	12/16/2003	Jeremy M. Ford	16356.826 (DC-05328)	9080

27683 7590 07/21/2009

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ART UNIT	PAPER NUMBER
2111	

MAIL DATE	DELIVERY MODE
07/21/2009	PAPER

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/736,854
Filing Date: December 16, 2003
Appellant(s): FORD ET AL.

Bart A. Fisher
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 10 March 2009 appealing from the Office action mailed 14 August 2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is incorrect. A correct statement of the status of the claims is as follows:

Claims 17-20 have been canceled in the amendment filed 10 March 2009.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is incorrect.

The amendment after final rejection filed on 2 October 2008 has not been entered.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows: Claims 17-20 have been cancelled in the amendment filed 10 March 2009, and thus the rejections of said claims and the arguments directed thereto are no longer applicable.

(7) Claims Appendix

A substantially correct copy of appealed claims 1, 5-11, and 21 appears on Pages 13-15 of the Appendix to the appellant's brief. The minor errors are as follows: Claim text has been presented for Claims 17-20, which were cancelled in the amendment filed 10 March 2009.

(8) Evidence Relied Upon

6148353	CHO	11-2000
2004/0212822	SCHINNER	10-2004
6359994	MARKOW ET AL.	3-2002

Hennessey, J.L. et al. "Computer Organization and Design" Second Edition. Morgan Kaufmann Publishers, Inc. 1998. Pages 13-18.

Greaves, D.J. "About SP-DIF or S/PDIF". Mixerton ST. 1996. <http://www.bigbrownbus.com/mixerton/whitepapers/spdif/sp-dif.html>.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Number 6,148,353 to Cho ("Cho"), US Patent Application Publication Number 2004/0212822 to Schinner ("Schinner"), "About SP-DIF or S/PDIF" by DJ Greaves ("Greaves"), and with evidence of inherency provided by Computer Organization and Design, Second Edition, by John L. Hennessey et al. ("Hennessey").

In reference to Claim 1, Cho discloses an information handling system including: an audio coder and decoder including a unidirectional digital audio output (See Figure 3 Number 40 and Column 3 Lines 37-40); a first docking connector in a portable portion (See Figure 3 Number 51); a second docking connector in a docking station (See Figure 3 Number 52); and a digital audio receiver to convert digital audio to analog audio and including a unidirectional digital audio input (See Column 3 Lines 29-31 and 34-40), wherein the digital audio receiver is located at the docking station and coupled to the docking connector via the unidirectional digital audio input (See Figure 3 Number 80). The computer of Cho will inherently include a processor; memory coupled to the processor; and glue logic coupled to the processor for facilitating connection of the processor to other devices, as these components are necessary for a computer to operate, as evidenced by Hennessy (See Pages 13-18). Cho is silent as to the type of unidirectional digital audio output used and the type of connector used, and does not

disclose that the unidirectional digital audio output is a Sony-Philips Digital Interface (S/PDIF); that the docking connector is a multipin docking connector; wherein only one audio pin of the first multi-pin docking connector is coupled to the audio coder and decoder, and wherein the only one audio pin of the first multi-pin docking connector is coupled to the audio coder and decoder via the unidirectional S/PDIF digital audio output; and wherein only one audio pin of the second multi-pin docking connector is coupled to the only one audio pin of the first multi-pin docking connector; and wherein the digital audio receiver is coupled to the only one audio pin of the second multi-pin docking connector via a unidirectional S/PDIF digital audio output. Schinner discloses the use of multipin docking connectors (See Paragraph 39). Greaves discloses the use of S/PDIF, which is a unidirectional digital link for audio (See Page 1 Paragraph 1 – Page 2 Paragraph 2). As S/PDIF uses only a single conductor (See Page 1 Paragraphs 2-3), the use of S/PDIF as the unidirectional digital audio link would necessarily only allow a single audio pin of the docking connector to be coupled to the audio coder and decoder through the S/PDIF link, and a single audio pin of the docking connector to be connected to the digital audio receiver through the S/PDIF link.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the device of Cho with a multipin docking connector and an S/PDIF audio link, resulting in the invention of Claim 1, because Cho is silent as to the type of docking connector used and the type of unidirectional audio link used, and one of ordinary skill in the art would naturally look to known connector types, such as a multipin connector, which allows for the transfer of both power and data (such as audio

data) to be transferred through the same connector (See Paragraph 39 of Schinner), and to known unidirectional audio links, such as an S/PDIF unidirectional digital audio link, which is well known (See Page 1 Paragraph 3 of Greaves) and which can carry a pair of stereo channels with a sampling rate of up to 96 Kbps with a sampling precision of up to 24 bits and automatic adaptation to the rate and precision being delivered (See Page 1 Paragraph 1 of Greaves).

In reference to Claim 5, Cho, Schinner, Greaves, and Hennessy disclose the limitations as applied to Claim 1 above. Cho further discloses that the digital audio receiver includes an analog output (See Column 3 Lines 40-42).

In reference to Claim 6, Cho, Schinner, Greaves, and Hennessy disclose the limitations as applied to Claim 5 above. Cho further discloses a first power amplifier coupled to the analog output (See Figure 3 Number 70 and Column 3 Lines 40-42).

Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho, Schinner, Greaves, and Hennessy as applied to Claim 6 above, and further in view of US Patent Number 6,359,994 to Markow et al. ("Markow").

In reference to Claims 7 and 8, Cho, Schinner, Greaves, and Hennessy disclose the limitations as applied to Claim 6 above. Cho, Schinner, Greaves, and Hennessy do not disclose a second power amplifier coupled to the second output, as in Claim 7, and

a subwoofer coupled to the second power amplifier, as in Claim 8. Markow discloses a docking station having a first set of speakers (See Figure 3 Numbers 300 and 302 and Figure 5 Numbers 504 and 505) coupled to a first power amplifier (See Figure 3 Numbers 320 and 322), and a subwoofer (See Figure 1B Number 107, Figure 3 Number 304, and Figure 5 Number 508) coupled to a second power amplifier (See Figure 3 Number 324).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the device of Cho, Schinner, Greaves, and Hennessy with the docking station subwoofer of Markow, resulting in the invention of Claims 7 and 8, in order to provide good sound quality with adequate bass in a portable computer without requiring cumbersome external speakers, thus increasing the enjoyment the user can get from the computer (See Column 2 Line 38 - Column 3 Line 4 of Markow).

In reference to Claims 9 and 10, Cho, Schinner, Greaves, Hennessy, and Markow disclose the limitations as applied to Claim 8 above. Markow further discloses that the docking station has a substantially closed volume having an aperture, as in Claim 9, and that the subwoofer is situated in the aperture to project sound therethrough, as in Claim 10 (See Figure 1B Numbers 100 and 107).

Claims 11 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho, Schinner, and Greaves.

In reference to Claim 11, Cho discloses a method of operating an information handling system including a portable portion (See Figure 3 'Host') and a docking station (See Figure 3 'Docking Station'), the method comprising: generating, by the portable portion, a digital audio signal (See Figure 3 Number 40 and Column 3 Lines 37-40); sending the digital audio signal across a docking interface between the portable portion and a docking station (See Figure 3 Number 50), wherein the docking interface comprises a first docking connector (See Figure 3 Number 51) coupled to an audio coder and decoder (See Figure 3 Number 40 and Column 3 Lines 37-40), and the first docking connector is coupled to a second docking connector (See Figure 3 Number 52), and wherein the second docking connector is coupled to a digital audio receiver (See Figure 3 Number 80); converting the digital audio signal to an analog audio signal (See Column 3 Lines 29-31 and 34-42); and amplifying the analog audio signal (See Figure 3 Number 70 and Column 3 Lines 40-42). Cho is silent as to the type of digital audio signal used and the type of connector used, and does not disclose that the digital audio signal conforms to a Sony-Philips Digital Interface (S/PDIF) standard; that the docking connectors are multi-pin docking connectors, that the first multi-pin docking connector is coupled to the audio coder and decoder using only one audio pin of the first multi-pin docking connector, wherein the second multi-pin docking connector is coupled to the digital audio receiver using the only one audio pin of the second multi-pin docking connector. Schinner discloses the use of multipin docking connectors (See Paragraph 39). Greaves discloses the use of S/PDIF, which is a unidirectional digital link for audio (See Page 1 Paragraph 1 – Page 2 Paragraph 2). As S/PDIF uses only a single

conductor (See Page 1 Paragraphs 2-3), the use of S/PDIF as the digital audio signal format would necessarily only allow a single audio pin of the docking connector to be coupled to the audio coder and decoder through the S/PDIF link, and a single audio pin of the docking connector to be connected to the digital audio receiver through the S/PDIF link.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the device of Cho with a multipin docking connector and an S/PDIF audio link, resulting in the invention of Claim 11, because Cho is silent as to the type of docking connector used and the type of unidirectional audio link used, and one of ordinary skill in the art would naturally look to known connector types, such as a multipin connector, which allows for the transfer of both power and data (such as audio data) to be transferred through the same connector (See Paragraph 39 of Schinner), and to known unidirectional audio links, such as an S/PDIF unidirectional digital audio link, which is well known (See Page 1 Paragraph 3 of Greaves) and which can carry a pair of stereo channels with a sampling rate of up to 96 Kbps with a sampling precision of up to 24 bits and automatic adaptation to the rate and precision being delivered (See Page 1 Paragraph 1 of Greaves).

In reference to Claim 21, Cho discloses a method for operating a portable information handling system (IHS) (See Figure 3 'Host') comprising: a docking station coupled to the HIS (See Figure 3 'Docking Station'); means for generating a digital audio signal (See Figure 3 Number 40 and Column 3 Lines 37-40); means for sending

the digital audio signal across a docking interface between the IHS and the docking station (See Figure 3 Number 50), wherein the docking interface comprises a first docking connector (See Figure 3 Number 51) coupled to an audio coder and decoder (See Figure 3 Number 40 and Column 3 Lines 37-40), and wherein the first docking connector is coupled to a second docking connector (See Figure 3 Number 52), and wherein the second multi-pin docking connector is coupled to a digital audio receiver (See Figure 3 Number 80); a converter for converting the digital audio signal to an analog audio signal (See Column 3 Lines 29-31 and 34-42); and means for amplifying the audio analog signal (See Figure 3 Number 70 and Column 3 Lines 40-42). Cho is silent as to the type of digital audio signal used and the type of connector used, and does not disclose that the digital audio signal conforms to a Sony-Philips Digital Interface (S/PDIF) standard; that the docking connectors are multi-pin docking connectors, that the first multi-pin docking connector is coupled to the audio coder and decoder using only one audio pin of the first multi-pin docking connector, wherein the second multi-pin docking connector is coupled to the digital audio receiver using the only one audio pin of the second multi-pin docking connector. Schinner discloses the use of multipin docking connectors (See Paragraph 39). Greaves discloses the use of S/PDIF, which is a unidirectional digital link for audio (See Page 1 Paragraph 1 – Page 2 Paragraph 2). As S/PDIF uses only a single conductor (See Page 1 Paragraphs 2-3), the use of S/PDIF as the digital audio signal format would necessarily only allow a single audio pin of the docking connector to be coupled to the audio coder and decoder

through the S/PDIF link, and a single audio pin of the docking connector to be connected to the digital audio receiver through the S/PDIF link.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to construct the device of Cho with a multipin docking connector and an S/PDIF audio link, resulting in the invention of Claim 21, because Cho is silent as to the type of docking connector used and the type of unidirectional audio link used, and one of ordinary skill in the art would naturally look to known connector types, such as a multipin connector, which allows for the transfer of both power and data (such as audio data) to be transferred through the same connector (See Paragraph 39 of Schinner), and to known unidirectional audio links, such as an S/PDIF unidirectional digital audio link, which is well known (See Page 1 Paragraph 3 of Greaves) and which can carry a pair of stereo channels with a sampling rate of up to 96 Kbps with a sampling precision of up to 24 bits and automatic adaptation to the rate and precision being delivered (See Page 1 Paragraph 1 of Greaves).

(10) Response to Argument

Appellant has argued that Greaves does not disclose that S/PDIF does not use a single conductor, and thus the use of S/PDIF as the digital audio signal format would not necessarily only allow a single audio pin of the docking connector to be coupled to the audio coder and decoder through the S/PDIF link, and a single audio pin of the

docking connector to be connected to the digital audio receiver through the S/PDIF link (See Pages 7-8). In response, the Examiner notes that Greaves describes the physical link for S/PDIF as "the line" in the singular form (See Page 1 Paragraph 2 Line 3). One of ordinary skill in the art would recognize that the use of the term "the line" in accordance with its broadest reasonable interpretation, denotes a single line. The Examiner further notes that it is well known in the art that S/PDIF digital audio is sent over a single conductor, as evidenced by "SPDIF Connection" by Gabriel Torres ("Torres") (See Figures 6, 7, 8, and 9), and not, as alleged by Appellant, over a connection requiring both a "+" conductor and a "-" conductor. S/PDIF commonly uses as the single conductor an RCA cable, which, as is well known in the art, consists of a single audio conductor surrounded by a grounded shield conductor. No audio is transmitted over the grounded shield, but rather it serves as a reference voltage and protection against noise over long distances. In the combination as relied upon in the rejections of the claims, a multipin connector is used in place of an RCA cable. One of the pins of the connector (an audio pin) is coupled to the audio coder and decoder and connected to the digital audio receiver. This pin is equivalent to the audio conductor of the RCA cable. Another pin of the connector (a non-audio pin) serves as a ground pin to ensure that both devices connected the docking connectors are using the same ground reference voltage, as failure to do so would render the devices inoperable, as each device would be using a different reference voltage, and thus the same signal on the audio pin would have different voltage values at each device. This pin is equivalent to the grounded shield conductor of the RCA cable.

Appellant has argued that Torres fails as prior art, and thus any rejections relying upon Torres are defective (See Page 9). In response, the Examiner notes that Torres was not relied upon in rejecting any of the claims. Rather, Torres was used in countering Appellant's arguments regarding features of S/PDIF. Greaves, which was relied upon in the rejection, has a date of 1996, which is over one year prior to Appellant's effective date. Torres discloses features which are inherently present in Greaves. It has been held that references cited to show a universal fact, such as that the characteristics of a prior art product (such as S/PDIF) were known, need not be available as prior art before Appellant's filing date. See *In re Wilson*, 311 F.2d 266, 135 USPQ 442 (CCPA 1962); *In re Koller*, 613 F.2d 819,823 n.5, 204 USPQ 702,706 n.5 (CCPA 1980); *In re Hogan*, 559 F.2d 595, 605 n.17, 194 USPQ 627,537 n.17 (CCPA 1977); and MPEP §2124. As Torres was relied upon only to show inherent characteristics of S/PDIF (which is disclosed in Greaves prior to Appellant's effective date), the use of Torres is valid. Further, the Examiner notes that, as Torres was not relied upon in any rejection of the claims, a reversal of any rejections using Torres as a reference cannot be made.

Appellant has argued that Torres relates to coaxial S/PDIF connections and optical connections, and that RCA and coaxial connection require two or more conductors (See Pages 9-10). In response, the Examiner notes that Torres was not relied upon in rejecting the claims, but rather was used in countering Appellant's

arguments regarding features of S/PDIF to show that certain features are inherently present in the prior art used in the rejections. Torres discloses that S/PDIF commonly uses as a single conductor an RCA cable, which, as is well known in the art, consists of a single audio conductor surrounded by a grounded shield conductor. No audio is transmitted over the grounded shield, but rather it serves as a reference voltage and protection against noise over long distances. In the combination as relied upon in the rejections of the claims, a multipin connector is used in place of an RCA cable. One of the pins of the connector (an audio pin) is coupled to the audio coder and decoder and connected to the digital audio receiver. This pin is equivalent to the audio conductor of the RCA cable. Another pin of the connector (a non-audio pin) serves as a ground pin to ensure that both devices connected the docking connectors are using the same ground reference voltage, as failure to do so would render the devices inoperable, as each device would be using a different reference voltage, and thus the same signal on the audio pin would have different voltage values at each device. This pin is equivalent to the grounded shield conductor of the RCA cable. The Examiner has not asserted that RCA cables (and thus S/PDIF cables) do not have multiple conductors, but rather that RCA cables (and thus S/PDIF cables) have only a single audio conductor. Appellant's claims only require that only one audio pin of the first multi-pin docking connector is coupled to the audio coder and decoder and that only one audio pin of the second multi-pin docking connector be coupled to the digital audio receiver, and do not preclude other non-audio pins (such as a ground conductor) from being coupled to the digital audio receiver and the audio coder and decoder. In fact, as indicated above,

failure to use a common ground reference would render the devices inoperable. The Examiner further notes that Appellant has admitted that the RCA connector may transmit data over only one conductor (See Page 9 Paragraph 3 – Page 10 Paragraph 1).

Appellant has argued that using an RCA connector could not teach or suggest the elements of "...only one audio pin of the first multi-pin docking connector" (See Page 10). In response, the Examiner notes that the combination as relied upon in the rejection does not use an RCA connector, but rather discloses a combination in which S/PDIF signals are sent across a multi-pin docking connector. Torres was used in countering Appellant's arguments regarding features of S/PDIF to show that certain features are inherently present in the prior art used in the rejections. Although Torres uses an example of RCA connectors, Torres was relied upon only to clarify that S/PDIF uses a single audio conductor.

Appellant's arguments with respect to Claims 7-10 are cumulative with and incorporate all of the arguments of parent claim 1 (See Pages 10-11). As Appellant's have provided no new arguments with respect to Claims 7-10, the Examiner's response is the same as provided with respect to the arguments of Claim 1.

Appellant's arguments with respect to Claims 11 and 21 are cumulative with and incorporate all of the arguments of related claim 1 (See Page 11). As Appellants have

provided no new arguments with respect to Claims 11 and 21, the Examiner's response is the same as provided with respect to the arguments of Claim 1.

Appellant's arguments directed to claims which were cancelled in the amendment filed 10 March 2009 have not been addressed, as the claims are no longer at issue.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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